PTC04-DB-PRESSURE01

Daughter Board for Melexis PTC devices

Features and Benefits

PTC04 interface board for testing devices:

- MLX90807
- MLX90808
- MLX90809
- MLX90810
- MLX90320

Applications

Experimental tool for Lab and Prototyping
Production Equipment for Serial Programming

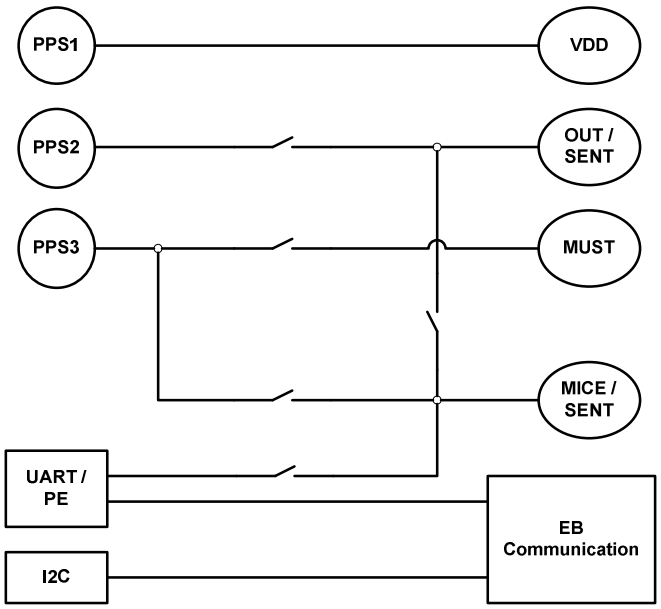
Ordering Information

Part No.		***Description***
PTC04-DB-PRESSURE01	Rev. 3	Daughter Board

Accessories

Part No.	***Description***
DLL's for all supported products	
User Interfaces for supported products	
Firmware for supported products	

1. Functional Diagram



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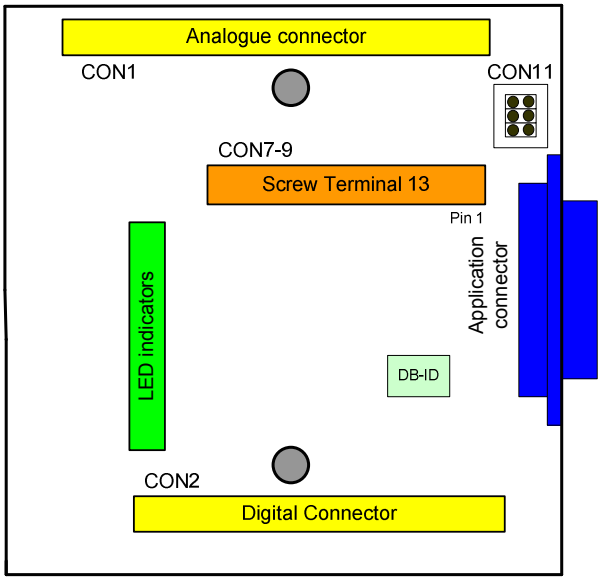
2. Board description

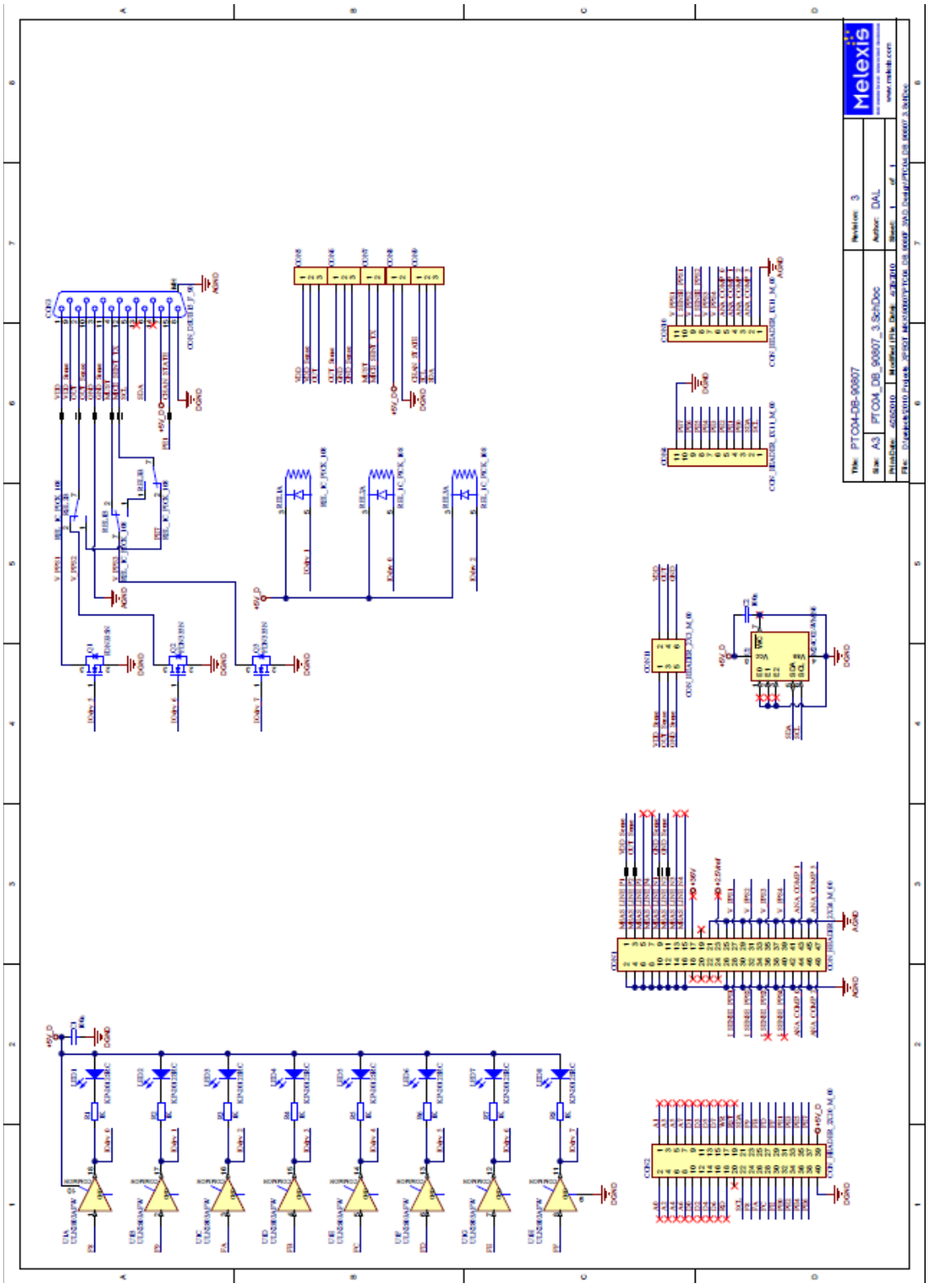
2.1. Board Layout



- CON11: Jumpers to connect the measurement sense lines immediately to the force lines. These jumpers are needed when no force and sense is used.
- DB-ID: This ID keeps a few initial variables in mind. It allows for example to detect what DB is connected to the programmer and if the DB is not expired.
- CON1, CON2: Analogue and Digital connector: See below for a detailed description.
- CON3: DB Connector, Connector to the application. See below for details.
- LED Indicators: 8 LED Indicators for the DB_IOdrv lines.
- CON7-9: 13 pins Screw Terminal. It provides the same signals as the application connector.

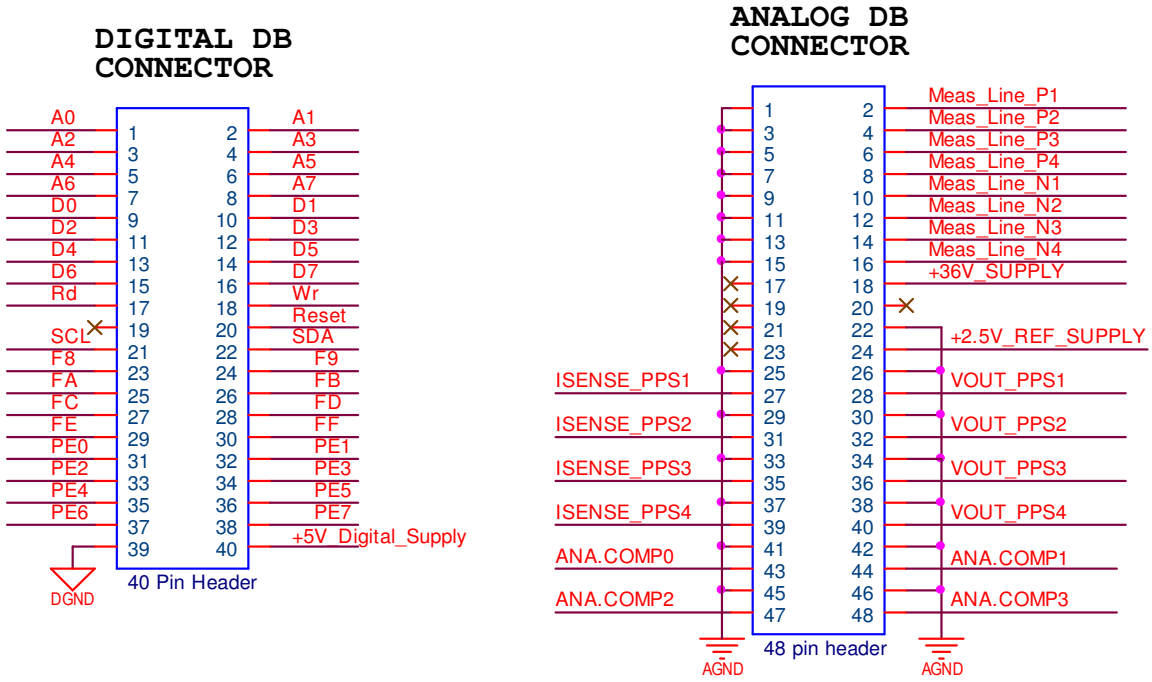
2.2. Board Schematics

Below you can find the complete schematics of the DB:



2.3. Daughter board Connectors

The PTC04 main board has two connectors to the interface with the application. The PTC allows adding a full PCB in between (Daughter Board). This daughter board can be mounted on the two connectors. In some exceptional cases, a daughter board contains only a few wires from the Analogue connector to the application connector. The pins on of the connectors are described below.



2.3.1. Digital DB Connector (40 Pins)

Mainly, the digital connector is meant to expand the programmer to extra needs. Address lines A0-A7 together with the Map Select Lines F8-FF allows to direct access an area of 2 K. Examples would be adding a simple addressed I/O register by using the selection lines. If more complexity is needed, a full FPGA can be mounted on the DB board

Pins	Names	Description
1 – 8	A0 – A7	Address lines
9 – 16	D0 – D7	Data Lines active during Rd or Wr signals
17	Rd	Read: A negative pulse will indicate a sampling of the data on the Data Bus
18	Wr	Write: A Negative pulse will indicate when data is available on the Data Bus
20	Reset	This signal goes low by powering the PTC or by pressing the reset button. This line can be pulled low by application. Check firmware documentation for resetting by software.
21-22	SCL / SDA	I²C Bus
23-30	F8,F9,...,FF	CS lines when the address areas are accessed
31-38	Port E	Note: These pins are limited to 5 Volt input/output!!! The full Port E of the Atmega core is mounted to these pins. This allows us to use advanced features like PWM, UARTS, Time Measurements, etc.... By using firmware that supports these, functions, application specific requirements can be fulfilled.
39	DGND	Digital Ground
40	+5V Digital	5 Volt Digital Supply. Maximum current to get out of this supply : 250mA

Note: All the pins are limited to 5 Volt input/output!!! However, there are Protections, please take precautions in order to avoid damage of the main board.

2.3.2. Analog DB Connector (48 Pins)

Mainly, the analog connector provides all the analog signals and measure possibilities.

Pins	Names	Description
28,32,36	PPS 1-3	Output of the high current Programmable Supplies
40	PPS 4	Output of the Fast DAC Programmable Power Supply
27,31,35,39	Isense_PP1-4	Outputs (Driver outputs before Rsens) for current evaluations. These outputs could be used to connect to the analog comparators in order to create fast digital signals based on current.
2,4,6,8	ExtMeas1-4Pos	There are 4 differential inputs for making measurements, these are the positive inputs.
10,12,14,16	ExtMeas1-4Neg	The negative inputs of ExtMeas1- 4Pos
43,44,47,48	AnaComp0-3	Input (limited to +5V) See *Note. Fast Level comparators in order to remove time consuming measurement
18	+35V_Supply	Supply to extend the daughter board with some extra drivers
24	+2.5V_Ref	Output of internal reference
All other	AGND	Analogue Ground

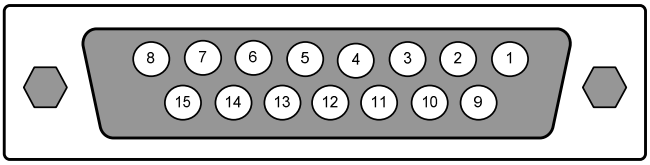
Note: All the pins are limited to 35 Volt input/output!!! However, there are protections, please take precautions in order to avoid damage of the main board.
* Note: Some pins are protected and limited to 5 Volt!!! However, there are Protections, please take precautions in order to avoid damage of the main board.

2.4. Application Connector

There are two ways to connect the application to PTC04:

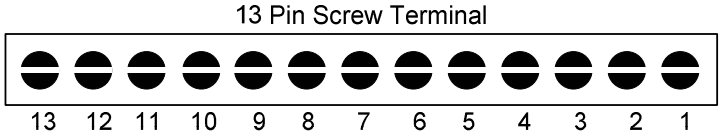
2.4.1. The DB15_Female connector (application connector)

DB15 Female Connector



Pins	Names	Description
1	VDD_DIE	Device Supply
2	OUT1_DIE	Device Output 1
3	GND_DIE	Analogue Ground
4	MUST	Digital test pin – MUST
5	SCL	I2C Communication (Communication with Extension Board)
6	SDA	I2C Communication (Communication with Extension Board)
7	5V_D	5V Digital Supply (Supply Extension Board)
8	DGND	Digital Ground (Supply Extension Board)
9	VDD_SENSE_DIE	Sensing Device Supply
10	OUT1_SENSE_DIE	Sensing Device Output 1
11	GND_SENSE_DIE	Sensing Analogue Ground Device
12	MICE	Digital test pin – MICE
13	NC	Not Connected
14	NC	Not Connected
15	CHAN STATE	Channel Status (Communication with Extension Board)

2.4.2. The screw terminal



Pins	Names	Description
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3	OUT1_ DIE	Device Output 1
4	OUT1_SENSE_DIE	Sensing Device Output 1
5	GND_DIE	Analogue Ground Device
6	GND_SENSE_DIE	Sensing Analogue Ground Device
7	MUST	Digital test pin – MUST
8	MICE	Digital test pin – MICE
9	5V_D	5V Digital Supply (Supply Extension Board)
10	DGND	Digital Ground (Supply Extension Board)
11	CHAN STATE	Channel Status (Communication with Extension Board)
12	SCL	I2C Communication (Communication with Extension Board)
13	SDA	I2C Communication (Communication with Extension Board)

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